Optoelectronic Dust Collecting Machine for Killing Bacteria and Viruses

This invention relates to an innovative, advanced and environment favorable handheld optoelectronic dust collecting machine for killing bacteria and viruses. This handheld optoelectronic dust collecting machine for killing bacteria and viruses can use extreme ultraviolet ray to eliminate viruses and bacteria on floor and in carpet, furniture and automobile compartment and to draw sundries such as garbage into the garbage box of the dust collecting machine, in which a separate extreme ultraviolet ray transmitting tube is provided for eliminating viruses and bacteria of garbage and sundries in the garbage box for long time so as to avoid breeding of new viruses and bacteria.

The optoelectronic dust collecting machine for killing bacteria and viruses according to this invention uses an extreme ultraviolet ray transmitting tube to produce extreme ultraviolet ray with wavelength of 253.7 nanometer. The scientific research proves that such ultraviolet ray can eliminate bacteria, viruses and mildew contained in the air most effectively. In the modern society, this dust collecting machine can be used conveniently at many places such as home, hospital, geracomium, department store, cinema, restaurant, office, workshop, elevator, automobiles of large, middle and small size, steamship, airplane and train, etc. According to the invention, the optoelectronic dust collecting machine for killing bacteria and viruses has functions of both cleaning and disinfecting, capable of improving the environment of human's living, inhabiting, medical treatment, working, consuming and riding on the transportation and the like, and returning human a clean space in the modern society with the natural environment of which has been damaged increasingly.

Optoelectronic Dust Collecting Machine for Killing Bacteria and Viruses

This invention relates to an innovative, advanced and environment favorable optoelectronic dust collecting machine for killing bacteria, viruses, and more particularly, to an optoelectronic dust collecting machine for killing bacteria, viruses, which gets power supply from automobile battery, built-in chargeable battery or municipal power supply.

An object of this invention is to provide an innovative design for such kind of optoelectronic dust collecting machine for killing bacteria, viruses.

The innovative invention involves an optoelectronic dust collecting machine for killing bacteria, viruses. This machine firstly use a movable cleaning head of a built-in extreme ultraviolet ray transmitting tube to clean the floor or carpet, while eliminating bacteria, viruses on floor, outside and inside carpet with extreme ultraviolet ray emitted from the extreme ultraviolet ray transmitting tube. Meanwhile, the dirty such as garbage ad sundries drawn into this dust collecting machine will be kept in the inner chamber at the front of the optoelectronic dust collecting machine. The inner chamber is provided with an another separate extreme ultraviolet ray transmitting tube for radiating extreme ultraviolet ray to eliminate viruses and bacteria existing in the dirty in the inner chamber so as to avoid breeding of new bacteria, viruses.

The main fittings of the optoelectronic dust collecting machine for killing bacteria and viruses of this innovative invention include an extreme ultraviolet ray transmitting tubes, a draft fan, an electric motor and a filter screen. When the garbage on the floor, outside and inside the carpet is drawn by the movable cleaning head of the dust collecting machine, the extreme ultraviolet ray transmitting tube of the movable cleaning head radiates extreme ultraviolet ray so as to eliminate bacteria, viruses on the floor, outside and inside the carpet. Meanwhile, the drawn garbage dirty will be kept in the inner chamber of the garbage box at the front of the dust collecting machine by being obstructed by the filter screen. A separate extreme ultraviolet ray in the inner chamber of this garbage box can eliminate possible new

bacteria, viruses, etc. breeding in the garbage dirty. The draft fan is driven by the electric motor to produce strong suction air flow so as to draw in the garbage dirty along with the air through the air inlet of the movable cleaning head. The air is drawn in the dust collecting machine via the filter screen through the movable cleaning head and the inner chamber of the garbage box and then exhausted outside from exhaust outlets on both sides of the dust collecting machine. In other words, when the air flows through the movable cleaning head and the inner chamber of the garbage box, the bacteria, viruses in the air are eliminated by the extreme ultraviolet ray. Therefore, the clean and fresh air is exhausted from the exhaust outlet so that the quality of environmental air indoor can be improved.

This dust collecting machine is shaped of streamlined structure, and other characteristics of this innovative invention are illustrated in details in the following description:

FIG.1 is a side view of the profile of this innovative invention;

FIG.2 is a longitudinal sectional view of the product shown in FIG. 1;

FIG.3 is a cross sectional view of the product shown in FIG. 1, in which the structure of the garbage box body is explained;

FIG.4 is a front view of the product shown in FIG. 1;

FIG.5 is a rear view of the product shown in FIG. 1;

FIG.6 is another side view of the product shown in FIG. 1;

FIG.7 is a top view of the product shown in FIG. 1;

FIG.8 is a bottom view of the product shown in FIG. 1;

FIG.9 is a structural view of the product shown in FIG. 1;

FIG.10 is a structural view of the product shown in FIG. 1, in which the air inlet, the air outlet and the conducting socket of the vacuum machine body are explained;

FIG.11 shows the structure of the movable vacuum cleaner;

FIG.12 is a cross sectional view of the movable vacuum cleaner shown in FIG. 11, in which the structure of the air inlet of the movable vacuum cleaner is explained;

FIG.13 is a cross sectional view of the movable vacuum cleaner shown in FIG. 11, in which the structure of the extreme ultraviolet ray transmitting tube of the

movable vacuum cleaner is explained;

The optoelectronic dust collecting machine for killing bacteria, viruses has a streamlined-shape machine body (1); an air inlet (2) is provided at the front of this machine body (1); a draft fan (3) is mounted onto the inner surface of the air inlet (2) and connected with a electric motor (4) that is mounted at the fixed place in the machine body (1). Two function switching push buttons (5) are provided at upper portion in the front of the machine body (1); an exhaust outlets (6) are arranged on the front and the back surfaces of the machine body (1); an external power supply socket (7) and a charge indicator lamp (8) are provided on the front surface of the machine body (1). A chargeable battery (9) and a AC municipal power line (16) are arranged in the chamber at the rear of the machine body (1); a slingshot (10) and a locking fastener (11) are provided on the trailing end of the machine body (1), where a long pipe (12) is also provided so that one end of the handle (13) can easily slide in and be locked by the locking fastener (11). There is a metal tube (14) at the front end of this handle (13), and a hand handle made of plastic cement is arranged at the trailing end of the metal tube (14). Two I-shape horses (15) are mounted at the bottom of the machine body (1), which are mainly used for the user for convenient connection to the external power line (16).

There are several long-hole locations on the fixing rack (18) of the switching push buttons, which are used for fixing the function switching buttons (15) and the snap fastener (19) that is used for fastening the garbage box body (20) for the purpose of flexible connection of the garbage box body (20) with the machine body (1). A circuit board (21) and a circuit element (22) are provided at the bottom of the said function switching push buttons (5) and a cover (24) is connected on the push handle (23) at the upper end of the function switching push buttons (5). A hand handle (48) is arranged at the upper end of the machine body (1) for the user' s convenient lifting.

There are two metal contacting parts (25) on the front end of the machine body (1), which are mainly used for connecting power supply for the extreme ultraviolet ray transmitting tube (32) in the garbage box body (20).

A filter screen (26) and a filter screen rack (27) are provided in the garbage box

body (20); a quadrate air inlet (28) is provided at the front end of the garbage box body (20) and a movable door (29) is provided at one end of the quadrate air inlet (28). Round contacting sockets (30) made of metal materials are positioned on left and right side of the quadrate air inlet (28) for supplying power to the movable cleaning head. A unit inner chamber (31) is provided at the upper end of the garbage box body (20), and the garbage box body (20) is provided with an extreme ultraviolet ray transmitting tube (32) therein; two conducting plugs (47) are provided on the other end of the unit inner chamber (31) for transmitting electric power to the garbage box body (20) so that the circuit power supply can be supplied to the extreme ultraviolet ray transmitting tube (31). There is a transmitting mirror (33) made of transparent materials under the extreme ultraviolet ray transmitting tube (31) so that the extreme ultraviolet ray can transmit into the garbage box body (20). A movable cover (34) is provided at the upper end of the unit inner chamber (31), by which the user can open the movable cover (34) conveniently when taking out the extreme ultraviolet ray transmitting tube (31) for cleaning or for replacing a new extreme ultraviolet ray transmitting tube (31). Obviously, the dirty such as garbage can be stored in the space between the rear surface of the movable door (29) and the filter screen rack (27).

The movable vacuum cleaner (49) is in the shape of a quadrate structure. A movable faucet (35) is provided on the upper end of the movable vacuum cleaner (49) and closely fitted with the quadrate air inlet (28) of the garbage box body (20). There is an air inlet (36) at one end of this movable faucet (35) and an air outlet (37) at the other end thereof. Contacting needles (30) made of metal materials are provided on left and right side of the air outlet (37) of the movable faucet (35). Contacting needles (30) can be inserted into the contacting socket (30) at the front end of the garbage box body (20) so as to connect the power supply. Another air inlet (36) of the movable faucet (35) can movably connected with the outlet (40) of the upper cover (39) of the movable vacuum cleaner (49) so that the movable vacuum cleaner (49) can automatically adjust itself to a proper angle during cleaning work for the user's convenience. The sliding plate at the lower part of the movable vacuum cleaner (49) has three pulleys for facilitating the movable cleaning head (49) to slide freely on the floor surface or the carpet. An extreme ultraviolet ray transmitting tube (32) is also

fixed at the front end of the movable vacuum cleaner (49). Contacting pieces (43) made of metal are provided at both the front and rear ends of the extreme ultraviolet ray transmitting tube (32). A transmitting mirror made of transparent material is provided under the extreme ultraviolet ray transmitting tube (32) so that the extreme ultraviolet ray can irradiate on the floor or to outside and inside of the carpet. A fixed long and soft adhesive strip (45) provided at the rear lower part of the movable vacuum cleaner (49) help the movable cleaning head (49) push the sundries such as garbage so that they can be easily drawn into the air inlet (46) when it slides freely on the floor surface or the carpet.

In the practical work, when the optoelectronic dust collecting machine for killing bacteria, viruses is operated, the draft fan (3) is driven by the electric motor (4) and produces a strong suction air flow while rotating rapidly, so that the air and sundries such as garbage can be drawn into the air inlet (28) of the garbage box body (20). The air can pass through the filter screen (26) and then via the air inlet (2) of the machine body (1) and be exhausted via the exhausting outlet (6) of the machine body (1). Meanwhile, the sundries such as garbage will be kept in the garbage box body (20) because they cannot pass through the filter screen (26) and they will be forcedly disinfect by the extreme ultraviolet ray transmitting tube over the garbage box body.

If the user mounts the movable vacuum cleaner (49) at the front end of the machine body (1) and the garbage box body (20), the air and the garbage, etc., will be drawn in through the air inlet (46) of the movable vacuum cleaner (49).

If the user opens the switching push button (5), the electric power supply in the machine body (1) will be transmitted through the circuit element (22) to the contacting parts (25) of the machine body (1), and then to the conducting plug (47) of the garbage box body (20) so that the extreme ultraviolet ray transmitting tube (32) of the garbage box body (20) can radiate extreme ultraviolet ray. Meanwhile, the electric power supply of the machine body (1) will be transmitted through the contacting parts (25) to the conducting plug (47) of the garbage box body (20), and then through the contacting socket (30) of the garbage box body (20) to the contacting pin (38) of the movable vacuum cleaner (49), so that the extreme ultraviolet ray transmitting tube (32) of the movable vacuum cleaner (49) can radiate extreme ultraviolet ray.

In other words, the rotation of the draft fan (3) in the machine body (1) will produce strong suction air flow by which the air and the garbage that include viruses, bacteria, etc. are drawn through the air inlet (46) of the movable vacuum cleaner (49) into the machine body (1) or directly drawn through the air inlet (28) of the garbage box body (20) into the machine body(1). The extreme ultraviolet ray radiated by the extreme ultraviolet ray transmitting tube (32) can eliminate bacteria, viruses contained in the air and garbage, and then the fresh and clean air will be exhausted from the outlet (6) of the machine body (1). In such a way, the quality of indoor environmental air can be improved. The user can clean up the garbage by removing the filter rack (27).

The optoelectronic dust collecting machine for killing bacteria, viruses of this innovative, advanced and environment favorable invention uses an extreme ultraviolet ray transmitting tube to produce extreme ultraviolet ray with wavelength of 253.7 nanometer. The scientific research proves that such kind of ultraviolet ray can eliminate bacteria, viruses contained in the air most effectively. In the modern society, this dust collecting machine can be used conveniently at many places such as home, hospital, geracomium, department store, cinema, restaurant, office, workshop, elevator, automobiles of large, middle and small size, steamship, airplane and train, etc. The optoelectronic dust collecting machine for killing bacteria and viruses of this innovative invention has functions of both cleaning and disinfecting, capable of improving the environment of human's living, inhabiting, medical treatment, working, consuming and riding on the transportation and the like, and returning human a clean space in the modern society with the natural environment of which has been damaged increasingly.